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L12: Entry 1 of 1

File: USPT

Dec 4, 2001

US-PAT-NO: 6327155

DOCUMENT-IDENTIFIER: US 6327155 B1

TITLE: Method and apparatus for preventing flamespread in an equipment assembly

DATE-ISSUED: December 4, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Niepmann; Mark Jeffrey	Suwanee	GA		
Wong; Eric Hoyt	Alpharetta	GA		
Champion, Jr.; Edward R.	Kennesaw	GA		

US-CL-CURRENT: [361/757](#), [361/752](#), [361/758](#), [361/796](#), [361/797](#), [361/800](#), [361/816](#)

ABSTRACT:

A printed circuit card assembly for preventing flame spread in an equipment assembly includes a printed circuit board having first and second sides, at least one of the first and second sides of the printed circuit board adapted for mounting a plurality of electronic components thereon; and a heat absorbing flame resistant shield facing one side of the printed circuit board for absorbing heat energy from an adjacent printed circuit card assembly thereby reducing heat transfer to the printed circuit board.

28 Claims, 6 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference
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1/22/02 4:17 PM

DOCUMENT-IDENTIFIER: US 5888627 A

TITLE: Printed circuit board and method for the manufacture of same

DATE-ISSUED: March 30, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakatani, Seiichi	Hirakata			JPX

US-CL-CURRENT: 428/209, 174/264, 29/829, 29/830, 29/835, 29/837, 29/841, 29/845, 29/852, 361/748, 361/749, 361/751, 361/760, 361/803, 428/304.4, 428/321.3, 428/901

ABSTRACT:

It is an object of the present invention to provide a highly reliable printed circuit board subject to little bowing or twisting of the substrate, wherein the substrate and metal wiring are securely bonded together, and stable electrical and mechanical connection is achieved between the metal wiring and electroconductive resin paste filled into the through holes, and to provide a method of manufacture for same. The present invention relates to a printed circuit board having a multilayer wiring structure comprising a plurality of sheet substrates consisting of resin component layers containing an inorganic filler formed onto both sides of an organic nonwoven fabric material, and two or more circuit patterns, wherein through holes are formed in the sheet substrates in the thickness direction thereof and an electroconductive resin component is filled into the through holes, forming electrical connection between each of the electrode layers, and to a method of manufacture for same.

31 Claims, 21 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	EMC	Draw Desc	Image
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☐ 3. Document ID: US 4588615 A Relevance Rank: 49

L1: Entry 6 of 6

File: USPT

May 13, 1986

US-PAT-NO: 4588615

DOCUMENT-IDENTIFIER: US 4588615 A

TITLE: Resin impregnation method

DATE-ISSUED: May 13, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Otty, Malcolm	West Kirby, Merseyside, Liverpool			GBX

US-CL-CURRENT: 427/294, 427/296, 427/350, 427/366, 427/389.8, 427/389.9, 427/392, 427/430.1, 427/434.3

ABSTRACT:

A fabric is resin-impregnated by placing it between a liquid resin surface and an evacuated space. The fabric can be laid on top of or passed continuously over a liquid resin surface, the resin being heated to a temperature at which it flows readily. A pre-preg produced according to the method can be laminated with other pre-preg or fabric layers into board, but several fabric layers can be impregnated together to form a thick pre-preg.

15 Claims, 3 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference
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☐ 4. Document ID: US 4698267 A Relevance Rank: 49

L1: Entry 5 of 6

File: USPT

Oct 6, 1987

US-PAT-NO: 4698267

DOCUMENT-IDENTIFIER: US 4698267 A

TITLE: High density para-aramid papers

DATE-ISSUED: October 6, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tokarsky, Edward W.	Newark	DE		

US-CL-CURRENT: 428/474.4, 162/146, 162/157.3, 428/413, 428/418, 428/421, 428/423.5, 428/425.1, 428/458, 428/463, 428/476.3, 428/537.5, 428/607, 428/626, 428/637

ABSTRACT:

High density para-aramid papers comprising 5 to 25 percent, by weight, binder and an amount of para-aramid fibers selected from the group consisting of para-aramid pulp, para-aramid floc and mixtures thereof, compacted to provide a volume percent para-aramid fiber of at least 53 minus 0.13 times the volume percent floc in the paper are useful in the preparation of circuit board substrates having a low coefficient of thermal expansion.

10 Claims, 0 Drawing figures Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference
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☐ 5. Document ID: US 4729921 A Relevance Rank: 49

L1: Entry 4 of 6

File: USPT

Mar 8, 1988

US-PAT-NO: 4729921

DOCUMENT-IDENTIFIER: US 4729921 A

TITLE: High density para-aramid papers

DATE-ISSUED: March 8, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tokarsky, Edward W.	Newark	DE		

US-CL-CURRENT: 428/326, 162/146, 162/157.3, 427/411, 428/323, 428/338

ABSTRACT:

High density para-aramid papers comprising 5 to 25 percent, by weight, binder and an amount of para-aramid fibers selected from the group consisting of para-aramid pulp, para-aramid floc and mixtures thereof, compacted to provide a volume percent para-aramid fiber of at least 53 minus 0.13 times the volume percent floc in the paper are useful in the preparation of circuit board substrates having a low coefficient of thermal expansion.

15 Claims, 0 Drawing figures Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference
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☐ 6. Document ID: US 5346750 A Relevance Rank: 49

L1: Entry 3 of 6

File: USPT

Sep 13, 1994

US-PAT-NO: 5346750

DOCUMENT-IDENTIFIER: US 5346750 A

TITLE: Porous substrate and conductive ink filled vias for printed circuits

DATE-ISSUED: September 13, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hatakeyama; Akihito	Kadoma			JPX
Sogo; Hiroshi	Nishinomiya			JPX
Kojima; Tamao	Osaka			JPX
Horio; Yasuhiko	Osaka			JPX
Tsukamoto; Masahide	Nara			JPX
Fukumura; Yasushi	Kyoto			JPX

US-CL-CURRENT: 428/209; 361/749; 428/304.4; 428/321.3; 428/901

ABSTRACT:

A method of manufacturing an organic substrate used for printed circuits, which includes the steps of forming through-holes (3) in a porous raw material (2) provided with cover films (1) and having compressive shrinkage, filling electro-conductive paste (4) into the through-holes (3), separating the cover films (1) from the porous raw material (2) filled with the electro-conductive paste (4) in its through-holes (3), applying metal foils (5) onto the surfaces of the porous raw material (2) from which the cover films (1) have been separated, and compressing the porous raw material (2) applied with the metal foils (5) through heating and pressurization, whereby the electro-conductive substances in the electro-conductive paste are connected for electrical connection between the metal foils.

10 Claims, 34 Drawing figures Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference
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FIG	Draw Desc	Image
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Search Results - Record(s) 1 through 2 of 2 returned.

- ☐ 1. Document ID: JP 57071878 A Relevance Rank: 88

L14: Entry 2 of 2

File: DWPI

May 4, 1982

DERWENT-ACC-NO: 1982-47323E

DERWENT-WEEK: 198223

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TITLE: Fibrous fire-resistant material - contg. ceramic-fibre, heat resistant fine powder and colloidal inorganic powder

PRIORITY-DATA: 1980JP-0147786 (October 22, 1980), 1981JP-0134552 (August 27, 1981)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 57071878 A	May 4, 1982		004	

INT-CL (IPC): C04B 35/66; C04B 43/02

ABSTRACTED-PUB-NO: JP57071878A

BASIC-ABSTRACT:

Fibrous fire-resistant and heat-insulating material exhibiting improved heat-shrinkage- and thermal shock resistance comprises 1 pt.wt. ceramic fibre, less than 5 pts.wt. heat-resistant fine powder e.g. bauxite, mullite, Al₂O₃ and/or TiO₂; colloidal inorganic binder, e.g. colloidal SiO₂, colloidal Al₂O₃ and/or colloidal ZrO₂ as 1-5 wt.% on total amt. of the ceramic fibre and powder under dried state; and opt. dispersant and adhesive e.g. polyethyleneoxide, hydroxyethyl cellulose, CMC, synthetic rubber latex, etc. and solvent (or H₂O). TiO₂ is pref. used as heat-resistant fine powder.

In an example, 100 pts.wt. ceramic fibre, 10 pts.wt. Al₂O₃ powder, 0.8 pts.wt. polyethyleneoxide, 2 pts.wt. CMC, 400 pts.wt. H₂O and 20 pts.wt. colloidal SiO₂ (20%) are thoroughly kneaded together to give a white uniform compsn.

Full	Title	Citation	Front	Review	Classification	Date	Reference
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- ☐ 2. Document ID: US 4976884 A Relevance Rank: 77

L14: Entry 1 of 2

File: DWPI

Dec 11, 1990

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L1: Entry 1 of 1

File: USPT

Dec 11, 1990

US-PAT-NO: 4976884DOCUMENT-IDENTIFIER: US 4976884 A

TITLE: Heat resistant composition processable by wet spinning

DATE-ISSUED: December 11, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Delvaux; Pierre	Bromptonville			CAX
Lesmerises; Normand	Rock Forest			CAX

US-CL-CURRENT: 252/62; 162/153; 162/155

ABSTRACT:

Disclosed is a heat-resistant composition particularly useful to produce heat-resistant boards or tubes, capable of resisting to a high temperature for a substantial period of time. The composition comprises from 70 to 90% by weight of a fibrous-like, synthetic forsterite obtained by calcination of chrysotile asbestos fibers at a temperature of from 650.degree. C. to 1450.degree. C., the synthetic forsterite having an MgO:SiO₂ ratio lower than 1:1, a raw loose density of from 3 to 40 pcf, a thermal conductivity "k" factor of from 0.25 to 0.40 BTU. in/hr..degree.F.ft.sup.2 and a fusion point of from 1600.degree. C. to 1700.degree. C. The composition also comprises an organic binder such as starch or latex, a mineral binder of the silicate type such as sodium or potassium silicate, or a mixture thereof. If desired, the composition may further comprise reinforcing fibers in such an amount as to give sufficient strength to the composition to make it operative depending on the intended use of the article produced therefrom. This composition can be used in particular to produce fire proofing boards.

7 Claims, 0 Drawing figures Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	EMC	Draw Desc	Image
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DERWENT-ACC-NO: 1991-006637
DERWENT-WEEK: 199101
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TITLE: Heat resistant asbestos-free compsn. - comprising synthetic forsterite obtd. by calcination of chrysotile asbestos together with organic and/or inorganic binder

INVENTOR: DELVAUX, P; LESMERISES, N

PRIORITY-DATA: 1989US-0409066 (September 19, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 4976884 A	December 11, 1990		000	

INT-CL (IPC): E04B 1/76

ABSTRACTED-PUB-NO: US 4976884A
BASIC-ABSTRACT:

A heat-resistant compsn. comprises 70-95 wt. % of a fibrous synthetic forsterite obtd. by calcination of chrysotile asbestos fibres at 650-1450 deg. C together with an organic and/or an inorganic silicate binder. The forsterite has an MgO:SiO₂ ratio lower than 1:1, a raw loose density of 3-40 lb/ft³, a thermal conductivity of 0.25-0.4 B.T.U m/hr. deg. F. ft² and a fusion point of 1600-1700 deg. C. Pref. the organic binder is starch or latex and the inorganic binder is sodium or potassium silicate.

The compsn. may also include reinforcing fibres esp. cellulose, glasswood, rock wood or refractory fibres.

USE/ADVANTAGE - Prodn. of heat-resistant panels and tubes also fire-proofing materials. Material has resistance to very high temp. over long periods. It can be fabricated by wet spinning.

Full	Title	Citation	Front	Review	Classification	Date	Reference
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